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there is a limit to expenditure for these ends, which limit is in the hope of profit to be derived. After all, all industry depends upon the production or exchange of articles that are desirable, and the desirability of an article is a determining factor in its value. But not merely must a product be desirable, it must be produced with proper economy, for that is a limiting factor affecting its marketability.

We have discussed this subject in an abstract manner. Many illustrations could have been introduced of how industries have profited through the assistance of chemistry. We have thought it better, however, to omit such illustrations but hope that during the coming year we shall have many papers practically demonstrating that what we have presented in the abstract is concretely true. When we speak of chemistry as affecting the profitableness of industry, we must bear in mind that, while all chemical knowledge may be said to come from the chemist, such knowledge is often made use of with profit by those who are not chemists. This is something that is unavoidable, and it seems to me no attempt should be made to make it avoidable. The benefits which chemists derive from the more general diffusion of chemical knowledge are very much greater than would be the case if chemists were successful in an attempt to make their profession esoteric. The progress of humanity can not be accomplished by making the study of chemistry and the benefits that come from it profitable only to the chemist. It is proper that the chemist should seek to obtain profit from his knowledge and ability, but he can not hope to do this except in some few cases, unless he is willing to give to others at least a portion of the knowledge that he possesses. All industries and occupations are interdependent. All industry depends upon the chemist, and the chemist depends

upon all industry. The more this interdependence is recognized, the greater the profit accruing to industry, and the greater the return to the chemist.

G. W. THOMPSON

INTERNATIONAL CONFERENCE ON THE
STRUCTURE OF MATTER¹

THE first International Conference in Brussels on the Theory of Radiation in 1911 owed its inception to Mr. Ernest Solvay, and proved a great success. Shortly afterwards, Mr. Solvay generously gave the sum of one million francs to form an International Physical Institute (*Nature*, Vol. XC., p. 545), part of the proceeds to be devoted to assistance of researches in physics and chemistry, and part to defray the expenditure of an occasional scientific conference between men of all nations to discuss scientific problems of special interest. In pursuance of this aim the second International Conference or Conseil International de Physique Solvay, was held in Brussels this year on October 27-31, under the able presidency of Professor Lorentz. On this occasion the general subjects of discussion were confined to the structure of the atom, the structure of crystals, and the molecular theory of solid bodies.

Reports were presented by the following: The structure of the atom, Sir J. J. Thomson; Interferenzerscheinungen an Röntgenstrahlen hervorgerufen durch das Raumgitter der Kristalle, Professor Laue; the relation between crystalline structure and chemical constitution, W. Barlow and Professor Pope; some considerations on the structure of crystals, Professor Brillouin, and Molekulartheorie der Festen Körper, Professor Gruneisen.

Among those present at the meeting were Professors Lorentz, Kamerlingh Onnes, Sir J. J. Thomson, Barlow, Pope, Jeans, Bragg, Rutherford, Mme. Curie, Gouy, Brillouin, Langevin, Voigt, Warburg, Nernst, Rubens, Wien, Einstein, Laue, Sommerfeld, Gruneisen, Weiss, Knudsen, Hasenöhrl, Wood, Goldschmidt, Verschaffelt, Lindemann and De Broglie.

¹ From *Nature*.

An interesting and vigorous discussion followed on all the papers presented to the congress. Special interest was taken in the report of Laue on the interference phenomena observed in crystals with X-rays. A valuable contribution was made by Professor Bragg on selective reflection of X-rays by crystals, and on the information afforded by this new method of research on crystalline structure. The report of Mr. Barlow and Professor Pope on the relation between crystalline structure and chemical constitution was illustrated by a number of models, and was followed with much interest. A report on the papers and discussions at the conference will be published as promptly as possible.

The arrangements for the meeting, which was successful in every way, were admirably made by Dr. Goldschmidt. All the members stayed at the same hotel, and thus were afforded the best of opportunities for social intercourse and for the interchange of views on scientific questions. During the meeting, the members were very hospitably entertained by Mr. Solvay and Dr. Goldschmidt, while a visit was made to the splendid private wireless station of the latter, which is one of the largest in the world, capable of transmitting messages to the Congo and Burmah.

The committee of the International Physical Institute, who were present at the conference, held meetings to consider the applications for grants in aid of research, made possible by the sum set aside for this purpose by Mr. Solvay at the foundation of the institute.

It was arranged that the next meeting of the Conseil de Physique should be held in three years' time at Brussels, when there will be a new program of subjects for discussion. In order to extend the scope of the congress, and to make it as representative as possible, it has been arranged that the original members will retire automatically at intervals, while their place will be taken by new members, who will be specially invited to take part in discussion of definite scientific topics.

E. RUTHERFORD

THE GEOLOGICAL SOCIETY OF AMERICA

THE twenty-sixth annual meeting of the Geological Society of America will be held in Princeton, N. J., on December 30, 1913, to January 1, 1914, inclusive. The sessions of the Society will be held in Guyot Hall and the council is going to continue the plans adopted for the management of last winter's meeting. The morning sessions will be devoted to papers that promise to be of general interest; the noon recess will be long in order to give some time for social intercourse, group discussions and the examination of special exhibits; the afternoon sessions will be somewhat short and will be given over to sectional meetings and to papers of less general scope. A special room (or more than one, if needed) will be provided for the display of specimens, the hanging of charts not needed in the public reading of papers, and for similar purposes. The smoking and general conversation room or rooms will be independent of the foregoing.

The annual address of the retiring president, Professor E. A. Smith, will be delivered on the evening of Tuesday the 30th. Dr. Arthur L. Day, director of the Carnegie Institution's geophysical laboratory has consented to give an illustrated lecture on "Kilauea During the Year 1912," which was the most active period of the volcano within historic times. Dr. Day will include in his address a statement of the results of the work done at the geophysical laboratory on the gases and other material collected at Kilauea. The lecture will be given at a time to be announced later.

The council respectfully urges the fellows to consider the following points in the preparation and presentation of their papers:

1. Subjects selected for presentation should include, as far as possible, matters of general interest and wide application. Details of local problems seldom hold the attention of the audience so closely as the new aspects of general considerations which such details may exemplify.

2. The time required for presenting a paper should be not more than twenty minutes, or at the outside thirty minutes. If the speakers will carefully estimate the time actually needed